Contribution ID: **24** Type: **Talk**

Neutron Radiation and Recovery Studies on SiPMs

Thursday, 14 June 2018 09:10 (20 minutes)

SiPM lost its performance characteristics when exposed to high dose of neutrons. However, the distinct hallmark of SiPMs, low dark count and excellent photon-number-resolving capability, can be recovered by thermal annealing. Several Hamamatsu and FBK series SiPMs are characterized before and after exposure of up to 1010 neutron/cm2 dosage using a 14 MeV neutron generation source. Collectively, we established that the typical orders of magnitude increase in dark current upon neutron irradiation can be lowered substantially after processing them with a novel thermal annealing procedure, and single-photon detection are to some extent recovered. Moreover, we found no significant difference on neutron damaged behavior when SiPMs are irradiated at room or liquid nitrogen temperatures.

Primary author: TSANG, Thomas (BNL)

Presenter: TSANG, Thomas (BNL)

Session Classification: Radiation Hardness

Track Classification: Radiation Hardness